

REMARKS

Paragraph [0022] of the specification has been amended to insert the filing data for the referenced application.

Claims 1-8 and 17-22 remain pending. Claims 9-16, drawn to the unelected invention, have been cancelled. Claim 1 has been amended to recite insert “fuel cell stack” after “cathode gas to each.”

Rejection Under 35 U.S.C. § 102(e) over Kato

Claims 1-3, 5, 6, 17, and 18 have been rejected under 35 U.S.C. § 102(e) as anticipated by Kato et al. U.S. Patent Application Publication 2004/0053092. Applicants respectfully traverse the rejection and request reconsideration of the claims.

The present claims are patentable over the Kato publication because the Kato publication fails to teach or disclose many aspects of the presently claimed systems. The apparatus described in Kato concerns a single fuel cell stack, see Kato Fig. 1 and paragraph [0010], while the system of the present claims encompasses a plurality of fuel cell stacks connected in parallel. The Kato publication does not teach or disclose a system that purges a plurality of fuel cell stacks. Nor does the Kato publication teach or disclose a plurality of fuel cell stacks connected in parallel.

The Kato publication also does not teach a controller that serves to deactivate only a first group of a plurality of fuel cell stacks while maintaining operation of a second group of the fuel cell stacks. The Kato publication’s control unit instead controls a single fuel cell stack.

Moreover, in the presently claimed systems, the second group of fuel cell stacks powers the compressor. The Kato publication nowhere discloses or suggests such an arrangement.

As Applicants discussed in their Background, shutdown and start-up systems are generally provided with energy from a battery storage system, which adds volume, weight, and expense. Applicants' system avoids using such a battery storage system by the claimed arrangement of elements, offering a marked advantage over the prior art.

In particular, Applicants respectfully point out that the Kato Abstract and paragraph [0010] of Kato do not concern deactivating a first group of fuel cell stacks while maintaining operation of a second group. This passage rather disclose a control unit that controls power operation in a fuel cell and operate electrical heaters and a water purging device when power operation is stopped.

Further, Applicants respectfully point out that paragraph [0022] of Kato does not describe a second group of fuel cell stacks powering a compressor. Nor does paragraph [0016] of Kato mention deactivating a second group of fuel cell stacks after a first group has been purged.

Applicants also submit that paragraph [0022] of Kato, while disclosing "a compressor which is connected to an end of the fuel cell stack for supplying gas for water purging into the fuel cell units," does not disclose a compressor that purges a first group of fuel cell stacks while being powered by a second group of fuel cell stacks.

Finally, paragraph [0056] of Kato describes its controller operating electrical heaters on either end of its fuel cell stack, but there is no mention or suggestion of electrical heaters for one set of fuel stacks being powered by another group of fuel cell stacks.

In view of these points, reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 102(b) over Roberts

Claims 1, 3, 4, 19, and 20 have been rejected under 35 U.S.C. § 102(b) as anticipated by Roberts et al. U.S. Patent Application Publication 2001/0055707. Applicants respectfully traverse the rejection and request reconsideration of the claims.

The present claims are patentable over the Roberts publication because the Roberts publication fails to teach or disclose many aspects of the presently claimed systems. Like the Kato reference, the Roberts publication concerns only control of a single fuel cell stack. Nothing in the Roberts publication deals with a system that simultaneously operates two groups of fuel cells differently.

The Roberts publication does not describe a plurality of fuel cell stacks connected in parallel, but rather describes one fuel cell stack. See Figure 3, reference number 210 (the fuel cell stack), paragraph [0041], and paragraph [0007] (a multiple fuel cell arrangement is referred to as a fuel cell stack).

The Roberts publication does not describe a controller that serves to deactivate only a first group of a plurality of fuel cell stacks while maintaining operation of a second group of the fuel cell stacks. The Roberts controller, on receiving instructions to shut down the system, opens the electrical circuit switch, closes the reactant supply valves, and opens the purge fluid valves. Paragraph [0045]. The Roberts publication does not disclose a controller that deactivates only a first group of a plurality of fuel cell stacks while maintaining operation of a second group of the fuel cell stacks. The Roberts publication also does not disclose a system in which a compressor is powered by a still-operating group of one or more fuel cell stacks. The Roberts publication teaches in paragraphs [0049], [0054], [0055], and [0057] the benefits of removing water from the

fuel stack before the water freezes, but there is no suggestion whatever to do so with Applicants' claimed system and arrangement.

Further with regard to claims 3, 4, 19, and 20, the Roberts publication nowhere mentions or suggests a controller that serves to reactivate a purged first group of fuel cell stacks and use heat generated by that first group to heat a second group of fuel cell stacks. Roberts generally describes a coolant water loop in paragraph [0043], but none of the features of controller or heat transfer between fuel cell groups of claims 3, 4, 19, and 20 are in the Roberts description.

Applicants point out that claims 17 and 18 have not been rejected as anticipated by the Roberts publication, and thus 19 and 20, which depend upon these claims, cannot be anticipated by the Roberts publication, either.

Reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Kato

Claims 7 and 8 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Kato et al. U.S. Patent Application Publication 2004/0053092. Applicants respectfully traverse the rejection and request reconsideration of the claims.

Claims 7 and 8 are patentable over the Kato publication for the reasons discussed above in connection with the rejection of independent claim 1. The Kato publication, which describes a system involving control of a single fuel cell stack, does not suggest a system for control of a plurality of fuel cell stacks, particularly for a controller that operates on separate groups of fuel cell stacks differently. Moreover, there is no suggestion to powder the compressor by Applicants' claimed arrangement.

In addition, claims 7 and 8 themselves recite a feature of the controller for selectively deactivating a first group of a plurality of fuel cell stacks, whereas the Kato publication again only concerns control of a single fuel cell stack and does not describe or suggest management of multiple fuel cell stacks. Thus, claims 7 and 8 are patentable over the Kato publication for this additional reason.

Reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Roberts

Claim 22 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Roberts et al. U.S. Patent Application Publication 2001/0055707. Applicants respectfully traverse the rejection and request reconsideration of the claim.

Claim 22 is patentable over the Roberts publication. The Roberts publication fails to teach, disclose, or suggest many of the features claimed in claim 22. Nothing in the Roberts publication teaches or suggests with a system that simultaneously operates two groups of fuel cells differently. Nor does the Roberts publication describe or suggest a plurality of fuel cell stacks connected in parallel, but rather describes one fuel cell stack. See Figure 3, reference number 210 (the fuel cell stack), paragraph [0041], and paragraph [0007] (a multiple fuel cell arrangement is referred to as a fuel cell stack).

Further, the Roberts publication does not describe or suggest a controller that serves to deactivate only a first group of a plurality of fuel cell stacks while maintaining operation of a second group of the fuel cell stacks. The Roberts publication does not disclose or suggest a controller that deactivates only a first group of a plurality of fuel cell stacks while maintaining operation of a second group of the fuel cell stacks.

The Roberts publication also does not disclose or suggest a system in which a compressor is powered by a still-operating group of one or more fuel cell stacks.

The Roberts publication also does not describe or suggest a system in which a compressor uses cathode gas to purge; instead, Roberts teaches using an independent supply of purging gas. Fig. 3, at reference number 260 & paragraph [0044].

Finally regarding the additional feature introduced in claim 22, the Roberts publication nowhere teaches or suggests purging a first group of fuel stack stacks while a second group continues to operate to meet a load command.

Reconsideration and allowance of the claim are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Roberts in view of Kato

Claim 21 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Roberts et al. U.S. Patent Application Publication 2001/0055707 in view of Kato et al. U.S. Patent Application Publication 2004/0053092. Applicants respectfully traverse the rejection and request reconsideration of the claim.

The shortcomings of the Roberts and Kato publication with regard to the claims limitations in the underlying independent claim 17 have already been discussed, and apply as well to claim 22. With regard to the additional features introduced in claim 22, neither publication teaches or suggests an electrical heater that heats a second group of fuel cell stacks and that is powered by a first group of fuel cell stacks. The Roberts publication merely discloses a coolant water loop pumped from a reservoir through a single fuel cell stack. The Kato publication discloses only that electrical heaters located at ends of a fuel cell stack will warm

fuel cells located at the ends to a temperature more uniform with centrally located cells. There is no suggestion regarding power source for the electrical heaters.

Reconsideration and allowance of the claim are thus respectfully requested.

Conclusion

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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